

REMARKS

Claims 1 to 28 are currently pending in this application. All of the claims have been rejected. In view of the following remarks, Applicant respectfully submits that this application is in condition for allowance. Accordingly, reconsideration and a timely Notice of Allowance are respectfully requested.

The Present Invention

The present invention provides a simple to use, clean and effective bladder and camera assembly whereby pipe breakages may be detected and patched. To this end, a bladder is provided in a self-supporting, generally annular form about a camera cable. The bladder is expandable from the initial generally cylindrical form. The camera view is in the advanced direction down the pipe and the bladder for patch application is preferably configured to expand progressively as pressure is applied. Preferably, the bladder expands progressively from the medial region and then outwardly with a final annular bulging to dress the ends of the patch to give a smooth transition from the pipe to the inner wall of the patch.

The Australian Priority Document

The Examiner requests that Applicant submit a photocopy of the Australian priority document. Applicant submits herewith a copy of the Australian priority document for placement in the application file.

Rejections Under 35 U.S.C. §102

As an initial matter, Applicant notes that the Examiner has not provided any specificity regarding the 102(b) rejections. As explained in MPEP §706 “The goal of examination is to clearly articulate any rejection early in the prosecution process so that the applicant has the opportunity to provide evidence of patentability and otherwise reply completely at the earliest opportunity.” Further as explained in 37 C.F.R. §1.104, “When

a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.” Accordingly, Applicant respectfully requests that the 102(b) rejections be withdrawn. However, Applicant submits the following remarks regarding the Examiner’s generalized rejections in an effort to respond.

The Examiner rejected claims 8, 9, 11 and 13 under 35 U.S.C. §102(b) as being anticipated by Ibak (DE 20207638). Applicant has carefully considered the Examiner’s rejection and respectfully traverses the rejection for the reasons that follow.

Independent claim 8 recites:

“A pipe test probe comprising an inflatable seal and camera assembled in series at a distal end of a cable and hose used to feed the probe down a pipe in a feed direction and retract the probe in the opposite direction, the inflatable seal comprising an elongate annular bladder surrounding the cable with the camera at the head and providing an advance view in the feed direction, the probe being flexible and able to pass down a pipe and deform to pass around corners in the pipe and upon inflation to seal the pipe for static test purposes.”

Ibak appears to teach an apparatus having a camera flanked by two bulbous portions. See Figs. 1 and 2. However, Ibek does not appear to teach or suggest “an inflatable seal”, a “camera at the head and providing an advance view in the feed direction” or a probe that is able “upon inflation to seal the pipe for static test purposes” as claimed. Accordingly, Applicants respectfully submit that claim 8 is patentable over Ibek.

Claims 9, 11 and 13 depend from claim 8 and by definition contain all of the limitations of claim 8. Accordingly, Applicants respectfully submit that claims 9, 11 and 13 are patentable over Ibak for the reasons given above for claim 8 as well as because of the additional limitations contained therein. For example, Ibak fails to teach or suggest “a cylindrical elastic bladder sealed airtight at opposite ends and being biased to expand medially,” as recited in claims 9 and 13. Therefore, Applicant respectfully requests that

the rejection of claims 8, 9, 11 and 13 under 35 U.S.C. §102(b) as being anticipated by Ibak be withdrawn.

The Examiner rejected claims 8, 9, 11 and 13 under 35 U.S.C. §102(b) as being anticipated by Sugiyama (JP 08159978). Applicant has carefully considered the Examiner's rejection and respectfully traverses the rejection for the reasons that follow.

Sugiyama teaches a camera in which a transparent elastic rubber expandable and contractible bag is mounted. Pressurized fluid is supplied to the bag to expand the bag to bring its transparent film to the inner surface of the pipeline so that the interior of the pipeline is inspected by the camera without the presence of water. See Abstract. However, Sugiyama fails to teach or suggest "an elongate annular bladder surrounding the cable with the camera at the head and providing an advance view in the feed direction" or a probe that is usable "upon inflation to seal the pipe for static test purposes" as recited in claim 8.

There is no teaching or suggestion that the bag of Sugiyama is suitable for sealing the pipe for static test purposes. Likewise, because the Sugiyama camera is positioned rearward of the bag, operation of the device is very different. The camera of Sugiyama is unable to provide an advance view unless the bag is inflated. Moreover, the bag itself is likely to obstruct the advance view of the camera should the bag become soiled or opaque.

Claims 9, 11 and 13 depend from claim 8 and by definition contain all of the limitations of claim 8. Accordingly, Applicants respectfully submit that claims 9, 11 and 13 are patentable over Sugiyama for the reasons given above for claim 8 as well as because of the additional limitations contained therein. For example, Sugiyama fails to teach or suggest "a cylindrical elastic bladder sealed airtight at opposite ends and being biased to expand medially," as recited in claims 9 and 13.

Therefore, Applicant respectfully requests that the rejection of claims 8, 9, 11 and 13 under 35 U.S.C. §102(b) as being anticipated by Sugiyama be withdrawn.

The Examiner rejected claims 1, 2, 4, 6, 15, 16, 18, 20, 22, 23, 26 and 27 as being anticipated by Barton (U.S. Patent No. 4,995,761). Applicant has carefully considered this rejection and respectfully traverses the rejection for the reasons that follow.

Independent claim 1 recites:

“A flexible probe for sealing a pipe or applying a patch, the probe comprising an inflatable bladder and camera assembled in series at a distal end of a cable and hose, the cable and hose being used to feed the probe down a pipe in a feed direction and retract the probe in the opposite direction, the inflatable bladder comprising an elongate annular bladder surrounding the cable with the camera at the head, the camera providing an advance view in the feed direction, the probe being flexible and able to pass down a pipe and deform to pass around corners in the pipe while carrying a tubular patch and upon inflation seal or patch the pipe.”

Independent claim 15 recites:

“A patch applicator probe for remote patching of damaged pipes, the probe comprising an inflatable patch applicator and camera assembled in series at a distal end of a cable and hose used to feed the probe down a pipe in a feed direction and retract the probe in the opposite direction, the inflatable patch applicator comprising an elongate annular bladder surrounding the cable with the camera at the head, the camera providing an advance view in the feed direction, a tubular open ended adhesive patch surrounding the bladder and upon inflation of the bladder in situ to a predetermined pressure the bladder applies the patch and bulges out the open ends of the patch to dress the ends of the patch.”

Barton is directed to an apparatus and method for repairing ruptures in underground conduits. Barton teaches an inflatable bladder and a flexible sleeve wrapped about at least a portion of the bladder, the bladder being inflatable to urge the sleeve into engagement with the conduit. However, as seen from Figs. 1 and 2A, the bladder and camera are each attached to separate cables that are introduced from separate manholes, in contrast to the presently claimed invention which uses a single cable and requires only one entry point into the pipe. Thus, Barton fails to teach or suggest a cable and hose

“used to feed the probe down a pipe in a feed direction and retract the probe in the opposite direction” as recited in claims 1 and 15. Additionally, Barton fails to teach or suggest an “elongate annular bladder surrounding the cable” as recited in claims 1 and 15.

Additionally, the camera is carried on a separate sled from the inflatable bladder and faces toward the inflatable bladder. Thus, Barton does not teach or suggest a “camera providing an advance view in the feed direction” as recited in claims 1 and 15.

Additionally, upon inflation, the bladder taught by Barton does not bulge “out the open ends of the patch to dress the ends of the patch” as recited in claim 15.

Claims 2, 4, 6, 16, 18 and 20 depend from claims 1 and 15 and by definition contain all of the limitations of claims 1 and 15 respectively. Accordingly, Applicants respectfully submit that claims 2, 4, 6, 16, 18 and 20 are patentable over Barton for the reasons given above for claim 1 as well as because of the additional limitations contained therein.

Independent claim 22 recites:

“A system for in situ remote patching of pipes, the system comprising a flexible inflatable patch applicator probe and an adhesive applicator jig for onsite application of adhesive to the probe, the probe having an inflatable bladder and camera located at the distal end of a flexible feed cable, the jig comprising a hollow former sandwiched between the probe and patch to stabilize same while the adhesive is being applied and then being slidably removable before the patch and probe are fed into a pipe.”

Barton fails to teach or suggest “an adhesive applicator jig for onsite application of adhesive to the probe . . . the jig comprising a hollow former sandwiched between the probe and patch” as recited in claim 22. In contrast, as seen from col. 4, line 53 to 62 and Fig. 3, Barton’s sleeve can be dipped directly in bonding material or bonding material can be applied to the sleeve by brushing or spraying.

Claims 23, 26 and 27 depend from claim 22 and by definition contain all of the limitations of claims 22 respectively. Accordingly, Applicants respectfully submit that

claims 23, 26 and 27 are patentable over Barton for the reasons given above for claim 22 as well as because of the additional limitations contained therein.

Therefore, Applicant respectfully requests that the rejection of claims 1, 2, 4, 6, 15, 16, 18, 20, 22, 23, 26 and 27 under 35 U.S.C. §102(b) as being anticipated by Barton be withdrawn.

The Examiner rejected claims 1, 2, 4, 6, 8, 9, 11, 13, 15, 16, 18, 20, 22, 23, 25 and 27 under 35 U.S.C. §102(b) as being anticipated by Lange (U.S. Patent No. 6,276,398). Applicant has carefully considered this rejection and respectfully traverses the rejection for the reasons that follow.

Lange is directed to an inflatable packer for repairing conduits. As seen from col. 3, lines 16 to 26 and col. 3 line 59 to col. 4, line 9, Lange teaches a C-shaped tray within which the bladder and patch are held in a vacuumed condition. Thus, Lange fails to teach or suggest an “elongate annular bladder surrounding the cable” as recited in claims 1, 8 and 15. The annular bladder presently claimed is advantageous, because it is more efficient and easier to use than the complex arrangement found in Lange and does not require a vacuum pump.

Claims 2, 4, 6, 9, 11, 13, 16, 18, and 20 depend from claims 1, 8 and 15 and by definition contain all of the limitations of claims 1, 8 and 15 respectively. Accordingly, Applicants respectfully submit that claims 2, 4, 6, 9, 11, 13, 16, 18, and 20 are patentable over Lange for the reasons given above for claims 1, 8 and 15 as well as because of the additional limitations contained therein.

Additionally, Lange fails to teach or suggest “an adhesive applicator jig for onsite application of adhesive to the probe . . . the jig comprising a hollow former sandwiched between the probe and patch” as recited in claim 22. Claims 23, 26 and 27 depend from claim 22 and by definition contain all of the limitations of claims 22 respectively. Accordingly, Applicants respectfully submit that claims 23, 26 and 27 are patentable over

Lange for the reasons given above for claim 22 as well as because of the additional limitations contained therein.

Therefore, Applicant respectfully requests that the rejection of claims 1, 2, 4, 6, 8, 9, 11, 13, 15, 16, 18, 20, 22, 23, 25 and 27 under 35 U.S.C. §102(b) as being anticipated by Lange be withdrawn.

The Examiner rejected claims 8, 9, 11 and 13 under 35 U.S.C. §102(b) as being anticipated by Mathison (U.S. Patent No. 4,691,728). Applicant has carefully considered the Examiner's rejection but respectfully traverses this rejection for the reasons that follow.

Mathison is directed to a pipeline testing and sealing system and method. While Mathison teaches an inflatable packer device, there is no teaching or suggestion that the inflatable packer device can seal a pipe for static testing. Additionally, there is no teaching or suggestion that the Mathison device is flexible for passing around corners. Accordingly, Mathison fails to teach or suggest a probe that is "flexible and able to pass down a pipe and deform to pass around corners in the pipe and upon inflation to seal the pipe for static test purposes" as recited in claim 8.

Additionally, as seen from Figs. 1 and 2 of Mathison, the bladder and camera are each attached to separate cables that are introduced from separate manholes, in contrast to the presently claimed invention which uses a single cable and requires only one entry point into the pipe. Thus, Mathison fails to teach or suggest a cable and hose "used to feed the probe down a pipe in a feed direction and retract the probe in the opposite direction" as recited in claim 8. Additionally, Mathison fails to teach or suggest an "elongate annular bladder surrounding the cable" as recited in claim 8.

Additionally, the camera of Mathison is carried on a separate sled from the inflatable bladder and faces toward the inflatable bladder. Thus, Barton does not teach or suggest a "camera providing an advance view in the feed direction" as recited in claim 8. Accordingly, Applicants respectfully submit that claim 8 is patentable over Mathison.

Claims 9, 11 and 13 depend from claim 8 and by definition contain all of the limitations of claim 8. Accordingly, Applicants respectfully submit that claims 9, 11 and 13 are patentable over Mathison for the reasons given above for claim 8 as well as because of the additional limitations contained therein.

Therefore, Applicant respectfully requests that the rejection of claims 8, 9, 11 and 13 under 35 U.S.C. §102(b) as being anticipated by Mathison be withdrawn.

Claim Rejections Under 35 U.S.C. §103

The Examiner rejected claims 3, 5, 7, 17, 19, 21, 24, 26 and 28 under 35 U.S.C. §103(a) as being unpatentable over Barton (U.S. Patent 4,995,761) in view of Mathison et al. (U.S. Patent No. 4,614,206). The Examiner's rejection has been carefully considered, but is respectfully traversed for the reasons that follow.

Claims 3, 5, 7, 17, 19, and 21 depend from independent claims 1 and 15 and by definition contain all of the limitations of claims 1 and 15 respectively. As explained above with regard to claims 1 and 15, Barton fails to teach or suggest a cable and hose “used to feed the probe down a pipe in a feed direction and retract the probe in the opposite direction” an “elongate annular bladder surrounding the cable,” and a “camera providing an advance view in the feed direction” as recited in claims 1 and 15. Additionally, upon inflation, the bladder taught by Barton does not bulge “out the open ends of the patch to dress the ends of the patch.” Applicant respectfully submits that Mathison et al. fail to remedy the defects of Barton.

Mathison et al. are directed to an expansible plug device for sealing the interior of a pipeline section. As explained in the abstract, the expansible plug device has interchangeable front and rear circular rigid support members for supporting the remaining elements of the device. An exteriorly smooth and interiorly corded elastomeric sleeve member is provided for expansion to seal against the interior wall of a pipeline section. The sleeve member has interiorly disposed parallel circumferential rings of a predetermined spacing inward its ends.

However, Mathison et al. fail to teach a device for applying a patch to the inside of a conduit. Accordingly, Mathison et al. fail to teach or suggest a bladder that when inflated, bulges “out the open ends of the patch to dress the ends of the patch.” Additionally, Mathison et al. fail to teach or suggest an “elongate annular bladder surrounding the cable,” and a “camera providing an advance view in the feed direction” as recited in claims 1 and 15.

Accordingly, Applicant respectfully submits that claims 1 and 15 are patentable over Barton and Mathison et al. considered alone and in combination. Applicant further submits that claims 3, 5, 7, 17, 19 and 21 are patentable over Barton and Mathison et al. for the reasons given above for claims 1 and 15 as well as because of the additional limitations contained therein.

Claims 24, 26 and 28 depend from independent claim 22. As explained above, Barton fails to teach or suggest “an adhesive applicator jig for onsite application of adhesive to the probe . . . the jig comprising a hollow former sandwiched between the probe and patch” as recited in claim 22. Applicant respectfully submits that Mathison et al. fail to teach or suggest a device for placing a patch on a pipe and therefore, fail to remedy the defects of Barton. Therefore, Applicants respectfully submit that claim 22 is patentable over Barton and Mathison et al. considered alone and in combination. Applicant further submits that claims 24, 26 and 28 are patentable over Barton and Mathison et al. for the reasons given above for claim 22 as well as because of the additional limitations contained therein.

Accordingly, Applicant respectfully requests that the rejection of claims 3, 5, 7, 17, 19, 21, 24, 26 and 28 under 35 U.S.C. §103(a) as being unpatentable over Barton in view of Mathison et al. be withdrawn.

The Examiner rejected claims 3, 5, 7, 10, 12, 14, 17, 19, 21, 24, 26 and 28 under 35 U.S.C. §103(a) as being unpatentable over Lange (U.S. Patent No. 6,276,398) in view

of Mathison et al. (U.S. Patent No. 4,614,206). The Examiner's rejection has been carefully considered, but is respectfully traversed for the reasons that follow.

Claims 3, 5, 7, 10, 12, 14, 17, 19, and 21 depend from claims 1, 8 and 15. As explained above, Lange fails to teach or suggest an "elongate annular bladder surrounding the cable" as recited in claims 1, 8 and 15. The annular bladder presently claimed is advantageous, because it is more efficient and easier to use than the complex arrangement found in Lange and does not require a vacuum pump. Applicants respectfully submit that Mathison et al. fail to teach or suggest an "elongate annular bladder surrounding the cable" and therefore fail to remedy the defects of Lange.

Accordingly, Applicants submit that claims 1, 8 and 15 are patentable over Lange and Mathison et al. considered alone and in combination. Applicant further submits that claims 3, 5, 7, 10, 12, 14, 17, 19, and 21 are patentable over Barton and Mathison et al. for the reasons given above for claims 1 and 15 as well as because of the additional limitations contained therein.

Claims 24, 26 and 28 depend from claim 22. As explained above, Lange fails to teach or suggest "an adhesive applicator jig for onsite application of adhesive to the probe . . . the jig comprising a hollow former sandwiched between the probe and patch" as recited in claim 22. Applicant respectfully submits that Mathison et al. fail to teach or suggest a device for placing a patch on a pipe and therefore, fail to remedy the defects of Lange. Therefore, Applicants respectfully submit that claim 22 is patentable over Lange and Mathison et al. considered alone and in combination. Applicant further submits that claims 24, 26 and 28 are patentable over Lange and Mathison et al. for the reasons given above for claim 22 as well as because of the additional limitations contained therein.

Accordingly, Applicant respectfully requests that the rejection of claims 3, 5, 7, 10, 12, 14, 17, 19, 21, 24, 26 and 28 under 35 U.S.C. §103(a) as being unpatentable over Lange in view of Mathison et al. be withdrawn.

The Examiner rejected claims 10, 12 and 14 under 35 U.S.C. §103(a) as being unpatentable over Mathison (U.S. Patent No. 4,691,728) in view of Mathison et al. (U.S. Patent 4,614,206). The Examiner's rejection has been carefully considered, but is respectfully traversed for the reasons that follow.

Claims 10, 12 and 14 depend from claim 8. As explained above, Mathison fails to teach or suggest a flexible device "to pass around corners in the pipe" as recited in claim 8. Additionally, Mathison fails to teach or suggest a cable and hose "used to feed the probe down a pipe in a feed direction and retract the probe in the opposite direction" as recited in claim 8. Additionally, Mathison fails to teach or suggest an "elongate annular bladder surrounding the cable" as recited in claim 8. Additionally, Mathison fails to teach or suggest a "camera providing an advance view in the feed direction" as recited in claim 8.

Applicant respectfully submits that Mathison et al. fail to remedy the defects of Mathison. In particular, Mathison et al. is silent regarding the use of a camera, fails to teach a flexible device "to pass around corners in the pipe", or the use an elongate annular bladder surrounding a cable as claimed. Accordingly, Applicants respectfully submit that claim 8, and claims 10, 12 and 14 depending therefrom are patentable over Mathison and Mathison et al. considered alone and in combination.

Accordingly, Applicant respectfully requests that the rejection of claims 10, 12 and 14 under 35 U.S.C. §103(a) as being unpatentable over Mathison in view of Mathison et al. be withdrawn.

The Examiner rejected claims 10, 12 and 14 Under 35 U.S.C. §103(a) as being unpatentable over Ibak (DE 20207638) in view of Mathison et al. (U.S. Patent No. 4,614,206). The Examiner's rejection has been carefully considered, but is respectfully traversed for the reasons that follow.

Claims 10, 12 and 14 depend from claim 8. As explained above, Ibak does not teach or suggest a "camera at the head and providing an advance view in the feed

direction” as recited in claim 8. Applicant respectfully submits that Mathison et al. are silent regarding a camera and therefore fail to remedy the defects of Ibak. Additionally, Applicant respectfully submits that one skilled in the art would have no motivation to add an inflatable seal to the device of Ibak. Therefore, Applicant submits that claim 8 and claims 10, 12 and 14 depending therefrom are patentable over Ibak and Mathison et al. considered alone and in combination.

Accordingly, Applicant respectfully requests that the rejection of claims 10, 12 and 14 under 35 U.S.C. §103(a) as being unpatentable over Ibak in view of Mathison et al. be withdrawn.

The Examiner rejected claims 10, 12 and 14 under 35 U. S.C. §103(a) as being unpatentable over Sugiyama (JP 08159978) in view of Mathison et al. (U.S. Patent No. 4,614,206). The Examiner’s rejection has been carefully considered, but is respectfully traversed for the reasons that follow.

Claims 10, 12 and 14 depend from claim 8. As explained above, Sugiyama fail to teach or suggest “an elongate annular bladder surrounding the cable with the camera at the head and providing an advance view in the feed direction.” Applicant respectfully submits that Mathison et al. fail to teach or suggest “an elongate annular bladder surrounding the cable” as recited in claim 8. Additionally, Mathison et al. are silent regarding the use of a camera and therefore fail to teach or suggest a “camera at the head and providing an advance view in the feed direction” as recited in claim 8. Therefore, Applicant respectfully submits that claims 8, and claims 10, 12 and 14 depending therefrom, are patentable over Sugiyama and Mathison et al. considered alone and in combination.

Accordingly, Applicant respectfully requests that the rejection of claims 10, 12 and 14 under 35 U.S.C. §103(a) as being unpatentable over Sugiyama in view of Mathison et al. be withdrawn.

CONCLUSION

In view of the above remarks, Applicant respectfully submits that this application is in condition for allowance. Therefore, reconsideration and a timely indication of allowance are respectfully requested. If the Examiner believes a telephone conference would aid in the prosecution of this application, then the Examiner is invited to contact the undersigned at the below listed telephone number.

A fee of \$230 is believed due with this communication for a two month extension of time to December 2, 2007. The Commissioner is hereby authorized to charge payment of this fee and any additional fees associated with this communication to Deposit Account No. 19-2090.

Respectfully submitted,
SHELDON MAK ROSE & ANDERSON

Date: November 30, 2007

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